Team #_____

2025
ASHP Clinical Skills Competition℠

NATIONAL COMPETITION CASE

Directions to National Clinical Skills Competition Participants

Identify the patient's acute and chronic medical and drug therapy problems. Recommend interventions to address the drug therapy problems using the forms supplied (Pharmacist's Patient Data Base and Pharmacist's Care Plan).

IMPORTANT NOTE: Only the **Pharmacist's Care Plan** will be used for evaluation purposes.

Pharmacist's Care Plan

Using the patient's data, you will be able to develop an effective care plan for your patient. Clearly define the healthcare problems. Healthcare problems include treatment of all acute and chronic medical problems, resolution of all actual or potential drug-related problems, and identification of any other health care services from which your patient may benefit.

Remember to think about potential medical problems for which your patient may be at risk and disease prevention and disease screening activities that may be appropriate to recommend. Also, don't forget to consider specific patient factors that may influence your goals and recommendations for therapy (e.g., physical, psychological, spiritual, social, economic, cultural, and environmental).

To complete your care plan, specify all of your patient's healthcare problems that need to be addressed. Then prioritize the problems into one of three categories: (1) Most urgent problem, (2) Other problems that must be addressed immediately (or during this clinical encounter), OR (3) Problems that can be addressed later (e.g., a week or more later/at discharge or next follow up visit). Please note that only one problem should be identified as the "most urgent problem."

Then **for each problem** describe the (1) therapeutic goals, (2) recommendations for therapy, and (3) monitoring parameters and endpoints. Your monitoring parameters should include the frequency of follow-up and endpoints should be measurable by clinical, laboratory, quality of life, and/or other defined parameters (e.g., target HDL is greater than 50 mg/dL within 6 months).

Remember:

- There should be only a "1", "2", or "3" listed in the priority column, and the number "1" should only be used once.
- When identifying individual problems for the case, use more specific terms when possible vs. general disease conditions. Also, use actual rather than weight-based doses when providing recommendations for therapy.

Team #_____

NATIONAL CASE

2025 ASHP CLINICAL SKILLS COMPETITION℠

Demographic and Administrative Information

Name: Phoebe King	**Patient ID:** 39676023
Sex: Female	**Room & Bed:** ED Bed 9
Date of Birth: 12/28/1962	**Admitting Physician:** Dr. Greene
Height: 66 inches / **Weight:** 86 kg / **Race:** Caucasian	**Religion:** N/A
Prescription Coverage Insurance: Blue Cross Blue Shield	**Pharmacy:** Walgreens
Copay: Tier 1: $5-$15/Tier 2: $20-$40/Tier 3: $40-$70	**Annual Income:** $45,000

Chief Complaint

"I have left foot pain and feel really weak"

History of Present Illness

Phoebe King is a 62-year-old female who presents to the emergency department with left foot pain, swelling, and erythema. She reports a history of bilateral, chronic foot ulcers. She reports that the ulcer on her right foot has healed, but the ulcer on the bottom of her left foot has persisted for 1-2 months. About a week ago, she noticed some redness surrounding the left foot ulcer. Over the next 3 days, she reports the area became warm and swollen, with purulent drainage. She also complains of a foul odor coming from the ulcer. She reports increased discomfort and pain with walking, especially when she bears weight over the area of the ulcer. She describes the pain as dull, aching, and tender to touch. She denies any recent trauma or injury to her feet.

She went to an urgent care center 2 days ago and was prescribed oral clindamycin which she has not yet started. Since then, she reports feeling feverish with chills, tiredness, and a general sense of malaise. She reported a recorded fever of 101.1°F (38.4°C) yesterday.

She reports a history of diabetes. She provides the following data from her continuous glucose monitor (CGM):

Time Frame: 11/29/2025 - 12/6/2025
Average Glucose: 250 mg/dL
Time in Range (70- 180 mg/dL): 41%

She reports having a procedure for peripheral artery disease a few months ago. She was discharged with instructions to follow up with her vascular team for medication optimization but didn't attend any follow-up appointments with them since she felt okay at the time. She reports increased leg cramps and pain in her left calf when she walks, which improves when she rests. She denies pain at rest, skin discoloration, or signs of gangrene. She expresses feelings of guilt and is concerned about her foot, acknowledging that smoking has contributed to her condition and stating a strong desire to quit. She also admits to recent weight gain and expresses motivation to pursue lifestyle changes before starting any medication.

Past Medical History

Type 2 diabetes mellitus
Diabetic peripheral neuropathy
Chronic foot ulcers
Hypertension
Chronic Kidney Disease, stage G3B/A1
Peripheral artery disease

Outpatient Drug Therapy

Prescription Medication & Schedule	Duration Start–Stop Dates	Prescriber	Pharmacy
Aspirin 325 mg, 1 tablet PO daily	7/30/25- Present	Dr. Lopez	Walgreens
Amlodipine 10 mg, 1 tablet PO daily	11/23/22- Present	Dr. Smith	Walgreens
Clonidine 0.3 mg, 1 tablet PO BID	4/5/23- Present	Dr. Smith	Walgreens
Docusate 100 mg, 1 capsule PO BID	4/5/23- Present	Dr. Smith	Walgreens
Famotidine 20 mg, 1 tablet PO BID	2/15/25- Present	Dr. Seth	Silverpine Regional Medical Center Retail Pharmacy
Metformin 1000 mg, 1 tablet PO BID	6/24/18- Present	Dr. Johnson	Walgreens
Pentoxifylline 400 mg, 1 tablet PO TID	7/26/19- Present	Dr. Lopez	Walgreens
Pravastatin 40 mg, 1 tablet PO daily	11/23/22- Present	Dr. Smith	Walgreens
Pregabalin 100 mg, 3 tablets PO TID	10/6/25- Present	Dr. Johnson	Walgreens

Medication History

Phoebe is committed to improving her health and reports compliance with all medications over the past 3 months. She is unsure why famotidine was started since she has no current gastrointestinal complaints.

Allergies/Intolerances

Shrimp (Hives)
Daptomycin (Urticaria)
Vancomycin (Vancomycin Infusion Reaction)
Lisinopril (Cough)

Surgical History

Appendectomy (2006)
Left leg angioplasty without stent (7/2025)

Family History

Father: deceased at age 86 from MI, had a history of hypertension and type 2 DM
Mother: alive, with hypertension, hyperlipidemia, depression

Social History

Tobacco Use:

- Smoking Status: Current
- Current packs/day: 0.4 (8 cigarettes/day)
- Average packs/day: 0.4 pack/day x 41 years (16 pack-years)
- Types: Cigarettes
- Start date: 1979
- Quit date: None

Smokeless Tobacco: Never
Vaping Status: Never Used
Alcohol Use: None
Drug Use: None

Occupation: Part-time clerk

Lives alone

Immunization History

- Received all childhood and adolescent vaccines up to age 18
- Influenza Vaccine - 10/25/25
- Shingrix - 2/9/2019 (1st dose), 6/17/2019 (2nd dose)

Immunization History (cont.)

- PPSV23 - 2/9/2019
- Tdap - 1/15/2020
- COVID-19 (Moderna) - 3/05/2021 (1st dose), 4/26/2021 (2nd dose), 10/25/2025 (booster)

Review of Systems

Constitutional: Positive for fevers, chills, fatigue
HEENT: Negative
Respiratory: Negative for cough or SOB
CV: Negative for chest pain
GI: Mild nausea, negative for vomiting or diarrhea
GU: Negative for difficulty urinating or hematuria
MSK: Positive for limited mobility and left foot pain. Negative for joint swelling or foot deformities.
Skin: Positive for redness, swelling, and warmth, localized about midway on the base of the left foot
Neurological: Negative for tingling in both feet. Negative for new focal weakness.
Psychiatric: Negative

Physical Exam

General: Ill-appearing, febrile, diaphoretic
HEENT: Normocephalic, atraumatic. Moist mucus membranes. No conjunctival pallor, no scleral icterus, extraocular muscles intact
Neck: Supple
Neuro: No new focal deficits noted
Lungs: CTA bilaterally. No wheezes, crackles, or rales.
CV: Regular rate and rhythm
Abdomen: Mildly distended, normoactive bowel sounds, mild palpation to tenderness
Skin: Warm and dry. No rashes or ecchymosis on exposed skin. Approximately 2 cm x 1.5 cm plantar ulcer with skin breakdown located on the lateral distal midfoot pad of the left foot, under 5th metatarsal. Ulcer is draining purulent fluid, with surrounding erythema and tenderness to palpation. Positive probe-to-bone test.
Extremities: Weak dorsalis pedis and posterior tibial pulses (1+). Warmth and erythema present on the dorsal surface of the left foot.

Vital signs

	12/6/2025, 30 minutes ago	12/6/2025, 1.5 hours ago		10/25/25 (PCP)
BP (mmHg)	94/52	88/50		145/85
MAP (mmHg)	66	62.7		
HR (bpm)	112	120		78
Temp (°C)	38.5	38.9		37.8
RR (breaths/min)	20	24		16
SpO2	96% on room air	97% on room air		

Labs

	12/6/2025, 1.5 hours ago		10/25/25 (PCP)
Metabolic Panel			
Na (mEq/L)	135		138
K (mEq/L)	4.5		3.9
Cl (mEq/L)	97		99
CO_2 (mEq/L)	26		25
BUN (mg/dL)	21		15
SCr (mg/dL)	1.6		1.5
Glucose (mg/dL)	255		199
Calcium (mg/dL)	9.5		8.6

	12/6/2025, 1.5 hours ago		10/25/25 (PCP)
Phosphorus (mg/dL)	4.2		3.9
Magnesium (mg/dL)	2.4		2.2
Albumin (g/dL)	3.9		4
AST (international units/L)	15		19
ALT (international units/L)	19		16
Total bili (mg/dL)	0.5		0.7
Complete Blood Count with Differential			
WBC (thousands/mm^3)	16.5		8.7
Neutrophils (%)	70		
Bands (%)	12		
Lymphocytes (%)	10		
Monocytes (%)	3		
Eosinophils (%)	1		
Basophils (%)	1		
Hgb (g/dL)	10.3		12.2
Hct (%)	36.1		39.3
Plt (thousands/mm^3)	305		300
Fasting Lipid Panel			
Total cholesterol (mg/dL)			210
LDL (mg/dL)			160
HDL (mg/dL)			30
Triglycerides (mg/dL)			150
Iron Panel			
Serum iron (µg/dL)			75
TIBC (µg/dL)			250
Transferrin Saturation	16%		30%
Ferritin (ng/mL)	90		150
Other			
Lactic acid (mmol/L)	3		
Hemoglobin A1c (%)			9.7
Albumin-to-Creatinine Ratio (ACR) (mg/g)			100
Parathyroid Hormone (PTH) (pg/mL)			45
25(OH)D (ng/mL)	8		
INR	1		
Erythrocyte Sedimentation Rate (ESR) (mm/hr)	79		
C-Reactive Protein (CRP) (mg/dL)	27.6		

Other Diagnostic Tests

Imaging:

- X-ray left foot (12/5/2025):
    - Impression:
        - Changes of fifth toe including subluxation at metatarsal phalangeal joint and soft tissue swelling.
        - Concern for osteomyelitis.

- US vascular duplex of left leg (12/5/2025):
    - Impression:
        - Successful revascularization of the left superficial femoral artery (SFA) and popliteal artery without evidence of restenosis.
        - Normal flow with mild post-procedural irregularities.
        - The left common femoral artery remains patent without stenosis or flow compromise.
        - Findings consistent with stable peripheral arterial disease status post revascularization.

Microbiology:

- Blood cultures x 2: pending
- Staphylococcus aureus nasal PCR: Positive for methicillin-resistant Staphylococcus aureus

Medication Administration Record

Admission Medications	Start Date/Time
Acetaminophen 650 mg PO Q6H prn mild pain or fever > 38.3 °C	Started in ED, 1.5 hours ago
Cefepime 2000 mg IV once	45 minutes ago, in the ED
Enoxaparin 30 mg SQ daily	Starting today at 21:00
Lactated ringer's bolus 1000 mL IV once	Started in the ED, 1.5 hours ago
Melatonin 3 mg PO nightly prn sleep	Starting today at 21:00
Supplemental Scale Insulin (Average Sensitivity) 1-10 units subcutaneous 4 times daily before meals and nightly POCT Glucose (BBG) Range: Insulin dose 0500-1959 Insulin dose 2000-0459 141-160 mg/dL = 1 unit = 1 unit 161-200 mg/dL = 2 units = 1 unit 201-250 mg/dL = 4 units = 2 units 251-300 mg/dL = 6 units = 3 units 301-350 mg/dL = 8 units = 4 units 351-400 mg/dL = 10 units = 5 units	
Ondansetron 4 mg IV Q6H prn nausea	Started in the ED 1.5 hours ago
Pantoprazole 40 mg PO daily	Started in the ED, 1.5 hours ago
Polyethylene glycol, 1 packet PO daily prn constipation	Started in the ED, 1.5 hours ago
Pravastatin 40 mg PO QHS	Starting today at 21:00
Pregabalin 300 mg PO TID	Started in the ED, 1.5 hours ago
Vancomycin 1000 mg IV once	45 minutes ago, in the ED

Consults:

- Orthopedics: Evaluated for diabetic foot ulcer with new osteomyelitis. Agree with admission for IV antibiotics. Recommend keeping patient NPO for surgical debridement & bone biopsy within the next 10 hours. Tissue viability appears preserved & vascular status adequate to support limb salvage; no amputation indicated at this time. Also evaluated for symptomatic PAD. US shows patent left SFA and popliteal artery post-revascularization

with normal flow and no significant re-stenosis. No vascular procedure is needed at this time. Will continue to monitor closely in conjunction with the primary team.

- Infectious Disease: Consult pending

Plan:

The patient is being admitted for the need of close hemodynamic monitoring due to sepsis. As a member of the admitting hospitalist team, please provide pharmacotherapy recommendations, including adjustments to home medications, to optimize the patient's care during hospitalization (including pre- and post-surgery) and at discharge.

ASHP Clinical Skills Competition℠ - Pharmacist's Care Plan

Evaluated for competition

Problem Identification and Prioritization with Pharmacist's Care Plan

A. List all health care problems that need to be addressed in this patient using the table below.
B. Prioritize the problems by indicating the appropriate number in the "Priority" column below:
   1 = Most urgent problem (Note: There can only be one most urgent problem)
   2 = Other problems that must be addressed immediately or during this clinical encounter; **OR**
   3 = Problems that can be addressed later (e.g. a week or more later)

Please note, there should be only a "1", "2", or "3" listed in the priority column, and the number "1" should only be used once. When identifying individual problems for the case use more specific terms when possible vs general disease conditions. Also, use actual rather than weight-based doses when providing recommendations for therapy.

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters

TEAM #_____

ASHP Clinical Skills Competition℠ - Pharmacist's Care Plan

Evaluated for competition

Problem Identification and Prioritization with Pharmacist's Care Plan

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters

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ASHP Clinical Skills Competition℠ - Pharmacist's Care Plan

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Problem Identification and Prioritization with Pharmacist's Care Plan

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Problem Identification and Prioritization with Pharmacist's Care Plan

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Problem Identification and Prioritization with Pharmacist's Care Plan

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters

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Problem Identification and Prioritization with Pharmacist's Care Plan

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Problem Identification and Prioritization with Pharmacist's Care Plan

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters

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Problem Identification and Prioritization with Pharmacist's Care Plan

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters

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TEAM #_____

TEAM #_____

2025

ASHP Clinical Skills Competition℠

NATIONAL CASE ANSWER KEY

Planned and Coordinated by:

The ASHP Pharmacy Student Forum

Sponsored by:

Supported by:

ASHP Clinical Skills Competition - Pharmacist's Care Plan – 2025 Answer Key (National Case)

Evaluated for competition

Problem Identification and Prioritization with Pharmacist's Care Plan

A. List all health care problems that need to be addressed in this patient using the table below.
B. Prioritize the problems by indicating the appropriate number in the "Priority" column below:
   1 = Most urgent problem (Note: There can only be one most urgent problem)
   2 = Other problems that must be addressed immediately or during this clinical encounter; **OR**
   3 = Problems that can be addressed later (e.g. a week or more later)

**Please note, there should be only a "1", "2", or "3" listed in the priority column, and the number "1" should only be used once.*

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters
Sepsis secondary to diabetic foot infection complicated by osteomyelitis **Or** **Sepsis secondary to diabetes-related osteomyelitis** ***Note: Only partial points awarded for* "Sepsis *secondary* to diabetic *foot infection* "or "*Sepsis*"**	**1**	1. Fluid resuscitation a. Partial fluid bolus (1000 mL) provided in the ED; give **at least** another 1500 bolus of crystalloid fluid to complete 30 mL/kg. Choose from **one** of the following: i. Normal Saline (0.9% NS) ii. Lactated Ringer's iii. PlasmaLyte 2. Optimize Antibiotics a. Choose **one** of the following options to cover Gram-Negative Rods (GNR): ***Full points (Non-antipseudomonal antibiotic):*** i. Ceftriaxone 1-2g IV Q 24 hours ii. Ampicillin-sulbactam 3g IV Q 6 hours ***Half points (Antipseudomonal antibiotic)***: iii. Cefepime 2 g IV Q 12 hours iv. Piperacillin-tazobactam 1. 3.375g or 4.5g IV Q 8 hours, over 4 hours **OR** 2. 3.375g or 4.5g IV Q 6 hours, over 30 minutes **AND**	Therapeutic Goals: ● Maintain MAP >/= 65 mmHg ● Lactate <2 mmol/L ● Resolution of infection ● Vancomycin: Target goal trough of 10-20 mg/L **or** AUC/MIC of 400-600 mg-hr/L Monitoring Parameters: ● Hourly vital signs (e.g. MAP, BP, HR, RR, Temp) until stable/resolution of sepsis ● Serum lactate every 2-4 hours until downtrending ● Daily white blood cell count for downtrend ● Daily serum creatinine to guide antibiotic dosing ● Wound/bone cultures to guide de-escalation ● Adverse effects of antibiotics after administration (e.g. diarrhea, skin rash, *C. difficile* infection, delayed hypersensitivity reactions) ● Vancomycin levels (**one** of the following, depending on dosing strategy chosen):

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters
		b. Continue Vancomycin to cover MRSA: i. <u>Load</u>: Partial load (1000 mg) provided in the ED; give another 750 -1250 mg to complete 20-25 mg/kg loading dose (using actual body weight) 1. Acceptable doses: 750 mg; 1000 mg; 1250 mg ii. <u>Maintenance Regimen (</u>Choose **<u>one</u>** of the following): 1. Scheduled Regimen: Initiate ~15 mg/kg Q 24 hours to target goal trough of 10-20 mg/dL or AUC/MIC of 400-600 mg-hr/L. a. Acceptable regimens: i. 1000 mg Q 24 hours ii. 1250 mg Q 24 hours iii. 1500 mg Q 24 hours iv. 1500 mg Q 36 hours v. 1750 mg Q 36 hours vi. 2000 mg Q 36 hours **<u>OR</u>** 2. Intermittent (Pulsed) Regimen: Check random level 24 hours after loading dose & re-dose if level is < 20 mg/dL. iii. Administer doses over 1.5-2 hours due to history of Vancomycin Infusion Reaction (+/- the following): 1. <u>Pre-medication</u> *(Optional)*: Administer diphenhydramine 25-50 mg, IV or PO, given 30-60 minutes prior to infusion 2. <u>Preparation</u> *(Optional)*: Increase dilution volume c. Duration of treatment for diabetic-related osteomyelitis without surgical resection: ≥ 6 weeks	○ Trough drawn 30 minutes to 1 hour prior to 4th-5th dose, once steady state is reached ○ Peak (1–2 hours post-infusion) and a trough (just before next dose) ○ Trough or random level within first 24-48 hours ● Signs and symptoms of Vancomycin Infusion Reaction (e.g. flushing, red rash, pruritus, dizziness, hypotension, tachycardia)

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters
Type 2 Diabetes Mellitus	**2**	1. Inpatient Management a. Continue holding home metformin b. Continue corrective/supplemental insulin (sliding scale) c. Initiate basal insulin i. Insulin glargine 4-20 units (dose reduced by 20-50% for NPO status) Q24 hours 1. **BONUS**: Initiate diabetic diet post procedure d. Initiate hypoglycemia protocol 2. Outpatient Management (or at Discharge) a. Resume metformin at a reduced dose of 500 mg PO BID due to renal function b. Initiate a SGTL-2 inhibitor or GLP-RA with CVD and CKD benefits. **Choose one of the following (starting doses):** i. Canagliflozin 100 mg PO once daily ii. Dapagliflozin 10 mg PO once daily iii. Empagliflozin 10 mg PO once daily iv. Semaglutide 0.25 mg subcutaneously once weekly	Therapeutic Goals: 1. Inpatient: o Blood glucose 100-180 mg/dL o Avoid hypoglycemia (BG < 70 mg/dL) 2. Outpatient/Discharge: a. A1c < 8% b. Fasting/Preprandial glucose: 80-130 mg/dL c. 1-2 hours postprandial glucose: < 180 mg/dL d. Avoid hypoglycemia e. Prevent micro- and macrovascular events Monitoring Parameters: 1. Inpatient a. Blood glucose levels (Fasting AM,4x daily while on SSI) b. Signs & symptoms of hypoglycemia: shakiness, tremors, sweating, headache, fatigue, confusion 2. Outpatient/Discharge: a. Recheck A1c in 3 months b. Blood glucose levels c. Signs & symptoms of hypoglycemia d. Serum creatinine for renal dose adjustments and risk of AKI e. Metformin AE: Diarrhea, B12 serum levels every 1-2 years f. SGLT2 inhibitor AE: Signs of volume depletion, hypotension,

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters
			signs/symptoms of genital mycotic infections g. GLP 1 agonist AE: nausea and diarrhea, injection site reactions, signs/symptoms of pancreatitis, signs/symptoms of gallbladder disease, worsening diabetic retinopathy
Chronic Kidney Disease	**2**	Optimize pharmacotherapy to slow CKD progression: 1. Renally dose adjust all medications 2. Avoid nephrotoxins 3. Start an angiotensin-related blocker (ARB) after resolution of sepsis and completion of surgery. Common options and starting doses include (choose **one)**: a. Losartan 25-50 mg once daily b. Irbesartan 150 mg once daily c. Valsartan 80-160 mg once daily or BID ***Note:* Any ARB available in the U.S. at the starting dose is acceptable*** 4. Start a SGLT-2 Inhibitor (see T2DM problem) 5. Optimize glycemic and blood pressure control (see T2DM & HTN problems)	Therapeutic Goals: ● Slow CKD progression ● Reduce CV risk Monitoring Parameters: ● SCr, urine albumin-to-creatinine ratio ● Electrolytes (Na+, K+, CO2, Ca2+, Phos) ● Blood pressure & Blood glucose ● ARB AE: Signs & symptoms of hypotension (dizziness, lightheadedness, fatigue), hyperkalemia (as above), elevated SCr (as above) ● SGLT-2 AE (see T2DM problem)
Inappropriate Stress Ulcer Prophylaxis	**2**	1. Discontinue pantoprazole as she neither meets criteria for SUP prophylaxis nor does she have an indication for acid-suppressive treatment 2. Discontinue home famotidine at discharge	Therapeutic Goals: ● Reduce risk of AE due to unnecessary medications ● Reduce pill burden and prevent polypharmacy Monitoring Parameters: ● N/A

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters
VTE prophylaxis	**2**	1. Hold subcutaneous enoxaparin pending surgery 2. Initiate sequential compression devices (SCDs) on **(either of the following)**: a. Both legs if ulcerated area is avoided **OR** b. Right leg only 3. Initiate chemical VTE prophylaxis 6–24 hours post-op if no further surgery is planned. **(choose one of the following):** a. Enoxaparin 40 mg subcutaneously Q 24 hours b. Heparin 5,000 units subcutaneously Q 8-12 hours Continue throughout hospitalization or until the patient is fully ambulatory.	Therapeutic Goals: ● Prevent VTE events while hospitalized Monitoring Parameters: ● Daily CBC ● Serum creatinine for renal dose adjustment ● Signs & symptoms of bleeding: bright red blood in urine, vomit, or stool; dark tarry stools, coffee-ground emesis ● Signs & symptoms of VTE: swelling, warmth, or pain in extremities, acute SOB, altered mentation with facial drooping, arm weakness, etc.
Hypertension	**2**	Optimize anti-hypertensive regimen at discharge based on guideline recommendations & co-morbidities: 1. Continue holding home amlodipine 10 mg PO daily and clonidine 0.3 mg PO BID while septic and awaiting surgery 2. Once clinically stable: a. Resume clonidine at full or reduced dose as soon as possible. Gradually taper over 6-10 days by reducing the dose by one-third to one-half every 2-3 days until discontinued b. Either (choose **one** of the following): **i.** Add an ARB to her existing regimen for better blood pressure control ***(Preferred).*** Refer to the CKD section for agents and starting doses **OR** **ii.** Switch from amlodipine to an angiotensin receptor blocker	Therapeutic Goals: ● While septic: Goal MAP > 65 & sufficient end-organ perfusion; avoid hypotension ● When stable/as an outpatient: BP < 130/80 mmHg or SBP < 120 mmHg ● Prevent clonidine withdrawal & rebound hypertension Monitoring Parameters: ● Blood pressure ● Heart rate ● Signs/symptoms of clonidine withdrawal: nervousness, agitation, headache, tremor ● Symptoms of hypotension: dizziness, lightheadedness, fatigue, blurred vision ● ARB AE (see above under CKD)

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters
		3. Encourage healthy lifestyle choices including a low-sodium diet (no more than 2300 mg Na/day), and engaging in physical activity at least 150 minutes/week	
Diabetic Peripheral Neuropathy	**2**	1. Reduce home pregabalin dose to ≤300 mg/day in 2–3 divided doses based on renal function. a. If pain worsens with dose reduction, consider adding or switching to duloxetine or gabapentin. 2. Optimize glycemic control (see T2DM problem) 3. Encourage preventative strategies such as daily foot inspection, appropriate footwear, and annual foot exam.	Therapeutic Goals: ● Reduce neuropathic pain ● Prevent progression of neuropathy and further complications (foot ulcers, amputation) Monitoring Parameters: ● Signs & symptoms of uncontrolled neuropathic pain: tingling, "pins and needles" sensation, burning or shooting pain ● Pregabalin AE: somnolence, dizziness, peripheral edema, weight gain, blurred vision
Anemia of CKD	**3**	Treat CKD-associated Iron deficiency anemia: Start oral iron supplementation. Common options and starting doses include (choose **one**): a. Ferrous sulfate 325 mg PO every other day **or** on Monday, Wednesday, and Friday b. Ferrous gluconate 324 mg PO every other day **or** on Monday, Wednesday, and Friday c. Ferric citrate 1,000 mg PO every other day **or** on Monday, Wednesday, and Friday **(BONUS if selected: Only FDA-approved option specifically for IDA in CKD)** ***Note:* Any oral iron supplementation available in the U.S. at the starting dose is acceptable**	Therapeutic Goals: ● Manage CKD-associated complications Monitoring Parameters: ● Anemia labs (Hgb, Hct, iron panel) in 1-3 months ● Oral Iron AE: Constipation, nausea, abdominal discomfort & cramping

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters
Vitamin D Deficiency	**3**	Treat CKD-associated Vitamin D deficiency: Start **<u>one</u>** of the following for Vitamin D replacement: 1. Cholecalciferol 50,000 units (1,250 mcg) once weekly ***(Preferred)*** 2. Ergocalciferol 50,000 units (1,250 mcg) once weekly	<u>Therapeutic Goals</u>: ● Manage CKD-associated complications <u>Monitoring Parameters</u>: ● Vitamin D & PTH ● Electrolytes (Ca2+, Phos)
ASCVD risk reduction/Peripheral Artery Disease	**3**	Optimize therapy for the patient's very high-risk clinical ASCVD & optimize PAD regimen to align with guideline recommendations at/when close to discharge: 1. Statin optimization a. Discontinue home pravastatin 40 mg daily and start a high-intensity statin. **Choose <u>one</u> of the following options**: i. Atorvastatin 40 mg PO daily ii. Atorvastatin 80 mg PO daily iii. Rosuvastatin 20 mg PO daily iv. Rosuvastatin 40 mg PO daily 2. PAD regimen optimization a. Switch ASA 325 mg to ASA 81 mg b. Start rivaroxaban 2.5 mg PO BID at discharge c. Discontinue pentoxifylline (not endorsed by guidelines due to lack of benefit) d. Start cilostazol 100 mg PO BID for claudication symptoms 3. Encourage adopting a DASH eating plan and engaging in physical exercise (see above under Hypertension)	<u>Therapeutic Goals</u>: ● ≥50% reduction from baseline LDL-C ● Reduce risk of CV and limb events ● Improve claudication symptoms <u>Monitoring Parameters</u>: ● Fasting lipid panel in 3 months ● Statin AE: muscle-related effects (myalgia, myopathy, rhabdomyolysis), symptoms of hepatotoxicity (fatigue, weakness, loss of appetite, abdominal pain), GI upset (diarrhea) ● ASA + rivaroxaban: signs & symptoms of bleeding, CBC ● Cilostazol AE: headache, diarrhea, abnormal stools

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters
Smoking Cessation	**3**	Start smoking cessation treatment given pt's desire to quit & to reduce the risk of PAD progression, limb loss, and CV death 1. Choose **one** of the following: a. Nicotine Replacement Therapy (**any** of following): i. Patch: 14 mg transdermal daily ii. Lozenges: 2- 4mg, use 1 lozenge every 1-2 hours, (max 20 lozenges/day) iii. Gum: 2-4 mg, chew 1 piece ever 1-2 hours (max 24 pieces/day) iv. Nasal Spray: 1-2 sprays in each nostril/hour (max 10 sprays/hour, 80 sprays/day) b. Bupropion SR 150 mg PO once daily (max 150 mg/day based on renal function) c. Varenicline 0.5 mg PO once daily during days 1-3, then increase to 0.5 mg PO BID on days 4-7, then increase to 1 mg PO BID **PLUS** 2. Cognitive behavioral therapy **OR** motivational interviewing	Therapeutic Goals: ● Abstinence from smoking ● Minimize tobacco withdrawal symptoms Monitoring Parameters: ● Barriers to quitting ● Signs and symptoms of withdrawal: cravings, irritability, anxiety, restlessness, insomnia, increased appetite or weight gain, constipation
Immunizations	**3**	Administer PCV-21, PCV-20, or PCV-15 to complete pneumococcal series	Therapeutic Goals: ● Reduce incidence of vaccine preventable diseases Monitoring Parameters: ● Hypersensitivity reactions ● Injection site pain
Obesity	**3**	1. Encourage lifestyle modifications to improve diet and increase physical activity 2. Consider behavioral therapy or weight management programs as needed	Therapeutic Goals: ● Weight reduction Monitoring Parameters: ● Weight ● BMI

For distribution at Judges' Dinner only!

2025
ASHP National Clinical Skills Competition℠
SUPPLEMENTAL NOTES (FOR JUDGES)

2025 ASHP CLINICAL SKILLS COMPETITION – NATIONAL CASE
SUPPLEMENTAL NOTES FOR JUDGES

The primary problem is **Sepsis secondary to diabetes-related osteomyelitis of the foot**

Problems to address while hospitalized and upon discharge include Type 2 Diabetes, Chronic Kidney Disease, Inappropriate Stress Ulcer Prophylaxis, VTE Prophylaxis, Hypertension, Diabetic Peripheral Neuropathy, Anemia of CKD, CKD-associated Vitamin D Deficiency, ASCVD Risk Reduction/Peripheral Artery Disease, Immunizations, and Obesity.

Health Care Problem 1
Sepsis secondary to diabetes-related osteomyelitis[1-7]

The patient is septic as they meet at least two out of the four SIRS criteria (Temp > 38 C, WBC > 14, and HR > 90) with a suspected source of infection (diabetes-related foot ulcer). Additionally, she has an elevated lactate, which significantly increases the likelihood of a sepsis diagnosis. Per the 2021 Surviving Sepsis Campaign, patients with sepsis-induced tissue hypoperfusion should be initiated on appropriate fluid resuscitation immediately upon recognition. Both the 2016 and 2021 guidelines recommend patients receive at least 30 mL/kg of IV crystalloid fluid within the first 3 hours of resuscitation. Our patient received one 1000 mL bolus of lactated ringers while in the Emergency Department; given she is 189 lb (86 kg), she still needs at least another 1500 mL of crystalloid fluid (either NS, LR, or PlasmaLyte) for fluid resuscitation. Following initial resuscitation, she should have ongoing assessment to evaluate her response to fluids and improvement in tissue perfusion. According to the 2021 guidelines, this should include dynamic measures such as stroke volume if available, or clinical signs like temperature of extremities, skin mottling, and capillary refill time. Since her MAP is 66 mmHg and she has not demonstrated to be fluid refractory, she does not meet criteria for septic shock. Thus, vasopressors and steroids are not currently indicated.

According to the 2021 Surviving Sepsis guidelines, antimicrobials should be administered as soon as sepsis is suspected, ideally within 1 hour of recognition. Initial therapy should include empiric broad-spectrum antibiotics to cover potential causative pathogens. In the ED, the patient received one dose each of Vancomycin and Cefepime while awaiting further work-up. Based on her presentation (localized swelling, erythema, warmth, increased pain around left foot ulcer, along with elevated WBC count, ESR, CRP, and severe hyperglycemia), the most likely source of infection is her infected foot ulcer. Osteomyelitis should have been suspected at presentation given the chronic, non-healing nature of the wound and further confirmed with the positive probe-to-bone test and foot X-ray findings. While MRI is more sensitive than X-ray for diagnosing early osteomyelitis, her clinical and laboratory findings strongly support an osteomyelitis diagnosis without advanced imaging. Her diabetic foot infection would be classified as severe/grade 4 (O) based on the IWGDF-IDSA classification in the 2023 DFI guidelines (any foot infection associated with SIRS + infection involving bone).

The IWGDF-IDSA guidelines recommend empirically covering gram-positive cocci (staphylococci & streptococci) +/- gram-negative rods in patients with moderate or severe DFI without complicating features. According to the guidelines, *Pseudomonas aeruginosa* coverage is not necessary for this patient since her ulcer is not macerated nor does she live in a warm, tropical climate (e.g. Asia or Africa). She has MRSA colonization as evidenced by a positive MRSA nares screen and MRSA risk factors of an open wound; hence MRSA coverage is warranted. Recommended empiric regimens include a beta-lactam/beta-lactamase inhibitor combinations or a 2nd & 3rd generation cephalosporin, plus an anti-MRSA agent (per IWGDF-IDSA Table 4). Oral antibiotics are not recommended for severe DFI except as a step-down after initial parenteral therapy. Additionally, oral agents may not have the bioavailability to provide adequate bone penetration. For this patient, Ceftriaxone IV 1-2g Q 24 and ampicillin-sulbactam 3g IV Q6 hours are the preferred guideline-based options for her given *P.aeruginosa* coverage is not needed. Although ampicillin/sulbactam may have decreasing efficacy against many Enterobacterales, it is still a guideline-endorsed option at this time. While piperacillin/tazobactam and cefepime are not explicitly recommended in the guidelines for a patient with her risk factors, they are commonly used in clinical practice, although not preferred as they provide broader than necessary coverage. Anti-MRSA options endorsed by the guidelines & available in the USA include vancomycin, linezolid, daptomycin, sulfamethoxazole-trimethoprim, and doxycycline. Oral sulfamethoxazole-trimethoprim and doxycycline are to be given for mild to moderate infections only. Among the intravenous options, linezolid, daptomycin, and vancomycin have been shown to be effective in clinical trials involving patients with diabetic foot infections.

Daptomycin is not appropriate for this patient given her allergy (urticaria). She will need > 2 weeks of therapy due to the severity of her infection & presence of osteomyelitis; hence, linezolid is a poor choice for this patient given the risks of myelosuppression (if used ≥ 14 days) and peripheral neuropathy (if used ≥ 28 days) with prolonged use.

Vancomycin is the preferred agent for this patient. While she reports a history of Vancomycin infusion reaction, Vancomycin can still be safely administered with adjustments to infusion rate (see below). Since she presents septic, she should receive a loading dose of 20-25 mg/kg (per Lexi-Comp for CrCl 15-49 mL/min) using actual body weight to quickly achieve target concentration of 10-20 mg/dL or AUC/MIC ratio of 400 to 600 mg-hr/L. Her dosing range is 1720 mg - 2150 mg, she will need an additional 750 mg-1250 mg (rounded to nearest 250 mg) to complete her loading dose. After the load, she can be started on a scheduled maintenance regimen since her serum creatinine & renal function are stable. Her Creatinine Clearance using the Cockcroft Gault Equation is 40.3 mL/min, calculated using an adjusted body weight of 70 kg since her actual body weight is 145% her ideal body weight of 59 kg. Suggested maintenance doses based on her renal function (per Lexi-Comp) should be around 15 mg/kg (dose rounded to the nearest 250 mg) every 24 hours, administered as an intermittent infusion. Using ClinCalc, 1000 mg Q 24, 1250 mg Q 24, 1500 mg Q 24, 1500 mg Q 36, 1750 mg Q 36, and 2000 mg Q 36 regimens achieve target trough levels and/or the desired AUC/MIC ratio. If trough monitoring strategy is chosen, troughs should be drawn at steady state, 30 minutes- 1 hour prior to the 4th or 5th dose. If AUC/MIC strategy is chosen, either two serum levels should be drawn; a peak concentration drawn 1-2 hours after infusion and a trough concentration drawn at the end of the dosing interval, or one level (random or trough) drawn within the first 24-48 hours after initiation. Alternatively, an intermittent (pulsed) regimen is an acceptable option; if this strategy is chosen, a random level should be obtained 24 hours after the loading dose with plans to re-dose if the level is < 20. The infusion rate should be slowed to 1 ½ -2 hours given her history of vancomycin infusion reactions. If needed, the dilution volume of the Vancomycin can also be increased. Additionally, an antihistamine (e.g. diphenhydramine) can be given prior to infusion to prevent or minimize this reaction.

Duration of therapy for DFI with osteomyelitis is dependent on surgical plans. Since the pt does not need a bone resection, treatment will be at least 6 weeks.

Health Care Problem
Type 2 Diabetes Mellitus[8-12]

The patient's current A1C of 9.7% and blood glucose values in the 200s reflect poor control of her diabetes.

The glycemic goal for inpatient non-critically ill patients is now 100-180 mg/dL in the ADA Guidelines (as of 2025) if it can be achieved without significant hypoglycemia. Currently, she is solely receiving correction/supplemental insulin, which is discouraged in the inpatient setting. Her diabetes management can be optimized with the addition of basal insulin. Basal insulin should not be held given her significant hyperglycemia which can affect her wound healing. Additionally, the ADA guidelines mention that non-cardiac surgical patients who received basal-bolus coverage had improved glycemic outcomes and lower rates of perioperative complications compared to those who received SSI only with no basal coverage. Insulin glargine is the preferred basal insulin choice for her. Insulin NPH not preferred in the hospital given its variable peak and risk of unpredictable hypoglycemia; Insulin mixtures, glargine U-300, degludec (both U-100 & U-300) are not appropriate choices or routinely recommended for inpatient hyperglycemia management. Insulin detemir is no longer available. Her insulin glargine dose can be calculated using weight-based dosing of 0.1 to 0.3 units/kg per Lexi-Comp (8-26 units with her weight of 86 kg); however, she would need a dose reduction (anywhere between 20-50%) due to her NPO status, which makes the appropriate range anywhere from 4 to 20 units given once daily. Would defer adding bolus/meal-time insulin at this time given her NPO status; can be initiated once surgical plans are complete and she is started on a diet (preferably carb controlled). Additionally, she should be initiated on a hypoglycemia management protocol.

Once clinically stable, her outpatient diabetes regimen should be optimized with non-insulin antidiabetic agents. No insulin is needed at this time as her A1c is still < 10%. Her A1c goal is < 8% given her age microvascular/macrovascular complications, and extensive comorbidities. This goal aligns with the target A1c range recommended by the KDIGO guidelines (6.5-8%). Since her eGFR is between 30-45 mL/min and she was taking & tolerating metformin at home, her

metformin can be resumed at discharge or once clinically stable; however, the dose will need to be reduced to a max of 500 mg BID based on her kidney function (per Lexi-Comp). She should also be started on a SGLT-2 inhibitor or GLP-1 receptor agonist for A1c reduction, ASCVD benefits (including reduction of MACE), and CKD benefits. GLP-1 RAs and SGLT-2 inhibitors with both proven CVD and CKD benefits. These include canagliflozin, dapagliflozin, empagliflozin, and semaglutide.

If a SGLT-2 inhibitor is chosen, it should not be initiated until after all potential surgery is completed due to risk for euglycemic DKA (although more common in T1DM)

Note: The 2022 KDIGO guidelines for DM management list metformin + SGLT-2 inhibitors as first-line therapy; however, semaglutide was FDA-approved in Jan 2025 for T2DM and CKD patients.

Health Care Problem
Chronic Kidney Disease[13-14]

The patient is receiving medications that need renal dose adjustments. Additionally, she is not currently taking any medications that would slow disease progression.

All medications should be renally adjusted. Antibiotic dose adjustments are discussed under the DFI section. Metformin dose adjustments & monitoring are discussed under the Diabetes section. Pregabalin dose adjustments are discussed under Diabetic Peripheral Neuropathy. Nephrotoxic medications and IV contrast should be used cautiously.

The patient's creatinine was elevated to 1.6 upon admission and her baseline SCr is 1-5-1.8. Since her creatinine is stable and unchanged from her baseline SCr, she has CKD and no AKI. CrCl calculated using the Cockcraft-Gault equation is the gold standard to estimate eGFR for pharmacy dosing of medications. Her CrCl is 40.3 mL/min, using an adjusted body weight of 70 kg since her BMI > 30 kg/m2. Using her eGFR and albumin creatinine ratio, her CKD can be classified as stage G3b, which is unchanged from what was reported in her past medical history from 3 months ago. Her ACR from 3 months ago is 100 mg/g, which is considered moderately increased, placing her category A2.

Per the 2024 KDIGO guidelines, she should be on an renin-angiotensin-system inhibitor (ACEi or ARB) to delay kidney disease progression and reduce proteinuria (& help treat her hypertension). This is especially important given her microalbuminuria and comorbidities of HTN and DM. Since she has a history of cough with ACEi so an ARB would be preferred for her. Only losartan and irbesartan are FDA-approved for both hypertension and proteinuric CKD; however, all ARBs are used interchangeably in clinical practice.

The ARB should be started only after she achieves clinical stability (i.e. sepsis has resolved) and surgery has been completed due to risk of intraoperative hypotension.

Other guideline-recommended therapies to slow CKD progression include SGLT2 inhibitors and finerenone. She should be initiated on a SGLT2-inhibitor (See diabetes section). Finerenone is only recommended in patients who are already on a maximum tolerated RAAS blocker so it is not appropriate to start at this time; however, it can be considered in the future. Glycemic control and blood pressure management will also help slow kidney progression.

Health Care Problem
Inappropriate Stress Ulcer Prophylaxis[15]

The patient is currently receiving pantoprazole without an appropriate indication. She is also receiving famotidine 20 mg PO BID at home without an indication (likely continued inappropriately at a previous hospital admission).

Pantoprazole should be discontinued as she neither meets the criteria listed in the SCCM/ASHP guidelines for SUP prophylaxis (critically ill patients with coagulopathy, shock, and chronic liver disease) nor does she have an indication for treatment (e.g. GERD, GI bleed). Continuing pantoprazole without a clear indication also increases the risk of adverse effects like *C. difficile* and potential drug interactions. Famotidine should be discontinued upon discharge.

Health Care Problem
VTE Prophylaxis[16-18]

The patient's chemical VTE prophylaxis dose is suboptimal based on her weight and renal function.

The benefits of VTE prevention must be balanced against bleeding risk, especially with surgery scheduled in 10 hours. Best practice would be to discontinue chemical DVT prophylaxis at this time (typically held for 12-24 hours pre-operatively, depending on the procedure) and initiate mechanical prophylaxis with sequential compression devices (SCDs). SCDs should ideally be placed on the right leg only due to the left foot infection, though bilateral placement is reasonable if the ulcerated area is avoided.

After surgery, she should be initiated on pharmacological VTE prophylaxis (usually 6-24 hours post-op, with surgical team's input) due to her reduced mobility, acute illness/active infection, and obesity. Her Padua score is at least 5 based on the previous factors so hospitalization-related VTE risk is high, thus, pharmacological prophylaxis is preferred over mechanical prophylaxis. Additionally, her bleeding risk is low and she does not have any contraindications to anticoagulation (e.g. severe thrombocytopenia). Either low molecular weight heparin (enoxaparin) or unfractionated heparin are appropriate options for prophylaxis although LMWH may be preferred due to less frequent dosing. Appropriate enoxaparin dosing is 40 mg SQ Q 24 hours; no adjustments are needed for her BMI and renal function. Appropriate heparin dosing is 5,000 units SQ 8-12 hours. Fondaparinux is not a preferred agent for VTE prophylaxis as it is usually reserved in clinical practice for patients with concerns for heparin induced thrombocytopenia. VTE prophylaxis should be continued for the length of hospitalization or until the patient is fully ambulatory.

Note: Rivaroxaban dosing for PAD (2.5 mg PO BID) is not sufficient for VTE prophylaxis, which is usually 10 mg PO once daily

Health Care Problem
Hypertension[19-23]

The patient's anti-hypertensive regimen needs to be optimized at discharge based on her co-morbidities.

Her outpatient blood pressure goals based on her co-morbidities are < 130/80 mmHg (based on the ADA 2025 and ACC/AHA 2024 guidelines) and SBP < 120 mmHg (per KDIGO 2021 guidelines). Her BP at her last clinic visit was elevated at 145/85 mmHg, which is stage 2 hypertension.

Her home blood pressure medications (clonidine 0.3 mg BID and amlodipine 10 mg daily) are currently being held. It is reasonable to continue holding while inpatient until clinically stable & while pending surgery plans due to the risk of hypotension with her sepsis and possible intra-operative hypotension when she goes to surgery.

When her blood pressure medication is ready to be resumed, clonidine should be reinitiated ASAP at either her home dose or a reduced dose to avoid withdrawal. The ACC/AHA 2025 guidelines recommend avoiding oral clonidine if possible, so she should be switched to another blood pressure lowering agent. Her clonidine dose should be gradually tapered and discontinued. She should be started on an ARB which is first-line for T2DM patients with CKD per the ADA guidelines for both renal and cardiovascular protection. It is also reasonable to switch the patient from amlodipine to an ARB if we are concerned about increased risk of hypotension with two BP-lowering agents, however, she should ideally be on two BP-lowering agents given her stage 2 hypertension. An ACE inhibitor would provide the same CV and renal benefits; however, it is not appropriate for this patient due to her history of cough while taking lisinopril.

Health Care Problem
Diabetic Peripheral Neuropathy[24-25]

The patient has chronic diabetic peripheral neuropathy on home pregabalin. Her pain appears to be controlled as she does not endorse any neuropathic pain symptoms; however, she reports tiredness in the HPI which could suggest

excessive dosing. Additionally, while pregabalin is an appropriate choice to treat neuropathic pain, her current dose of 300 mg PO TID requires a dose adjustment as it exceeds the daily maximum dose for her renal function of 40.3 mL/min. Her regimen should be adjusted to be no more than 300 mg/day in 2-3 divided doses per Lexi-Comp. She will unlikely be completely pain-free; however, if the reduced dose does not provide acceptable pain relief, consider adding or switching to duloxetine or gabapentin. Her PRN acetaminophen for pain/fever can be continued for adjunctive pain relief related to her DFI.

Non-pharmacological therapies that may also improve pain control include proper foot care, optimizing glycemic control, optimizing lipid control, exercise, cognitive behavioral therapy, transcutaneous electrical nerve stimulation, spinal cord stimulation, and acupuncture.

Health Care Problem
Anemia of CKD[26,27]

Patients with CKD often develop complications such as anemia, hyperphosphatemia, metabolic acidosis (low serum CO_2), and mineral bone disease. This patient's calcium, phosphorus, and PTH levels are normal; however, she has CKD-associated iron deficiency anemia, as evidenced by hemoglobin <12 g/dL, ferritin ≤ 500 ng/mL, and TSAT ≤ 30% per the 2012 KDIGO guidelines for Anemia of CKD. The 2025 KDIGO draft guidelines endorses a cutoff of ferritin <100 ng/mL, and TSAT <40%; she meets criteria for iron repletion according to both guidelines. Since she is non–dialysis dependent, the 2012 KDIGO guidelines recommend a 1–3 month trial of oral iron as first-line therapy. Ferric citrate is the only oral iron FDA-approved for CKD-related IDA, though other oral iron supplements are also commonly used. Dosing every other day is preferred to enhance absorption and minimize side effects.

While IV iron is an option, its use during active infection is controversial. The 2025 KDIGO draft guidelines recommend temporarily holding iron therapy during systemic infections, though clinical judgment may guide use in milder infections. Given that the patient is actively septic, not symptomatically anemic, and has not yet tried oral iron, oral therapy is preferred at this time.

Health Care Problem
CKD-associated Vitamin D Deficiency[28-30]

The patient has vitamin D deficiency, which should be treated to prevent secondary hyperparathyroidism. Appropriate treatment includes cholecalciferol (preferred for being the more active form) or ergocalciferol, dosed at 50,000 units (1,250 mcg) once weekly for 6–12 weeks, per Lexicomp recommendations.

Health Care Problem
ASCVD Risk Reduction/Peripheral Artery Disease[31-34]

The patient has very high-risk clinical ASCVD (Symptomatic PAD) and should be on a high-intensity statin. She is currently on pravastatin 40 mg, which is moderate intensity, and should be switched to either atorvastatin (40 mg- 80 mg) or rosuvastatin (20- 40 mg), with the goal of achieving a ≥50% LDL-C reduction from baseline. If started on either atorvastatin 40 mg or rosuvastatin 20 mg, her statin dose should be titrated to maximum tolerated dose. If LDL-C remains >/= 70 mg/dL or non-HDL-C >/= 100 mg/dL, consider adding ezetimibe followed by a PCSK9 inhibitor. Her lipid panel is recent so no inpatient repeat is necessary, but she should have a follow-up panel drawn in 3 months.

The patient is already on aspirin for PAD, which helps reduce ASVCD risk; however, her home regimen requires optimization based on her chronic claudication symptoms and recent left leg balloon angioplasty (without stent). According to the 2024 AHA/ACC PAD guidelines, she meets criteria for symptomatic PAD and should be on both antiplatelet and antithrombotic therapy. The preferred regimen is low-dose aspirin plus rivaroxaban 2.5 mg BID based on the COMPASS trial. Her current full-dose aspirin should be reduced to low-dose to minimize bleeding risk. While SAPT or DAPT with full-intensity anticoagulation are alternative options, they carry weaker recommendations. Rivaroxaban should be initiated at discharge. Additionally, pentoxifylline should be discontinued as it is no longer

recommended by the guidelines due to lack of benefit. For her claudication symptoms, can initiate cilostazol 100 mg PO BID, which is guideline-supported for improving walking distance and function.

Non-pharmacological management is also essential. She should adopt a heart-healthy lifestyle (Mediterranean or DASH diet) and engage in physical exercise (150 minutes/week).

Health Care Problem
Smoking Cessation[35-38]

The patient is a daily smoker and will need smoking cessation treatment to reduce the risk of PAD progression, limb loss, and cardiovascular morbidity and mortality.

FDA-approved pharmacological options for tobacco cessation treatment include nicotine replacement (NRT), bupropion SR, and varenicline. Any of these options can be used in this patient. Nicotine patches are commonly used for hospitalized patients. Dosing for the patch depends on the number of cigarettes a patient smokes/day; since she smokes </= 10 cigarettes/day, the appropriate dose for her is 14 mg/day x 6 weeks, which can be followed by 7 mg/day for 2 weeks. Initial dosing for the gum & lozenge is based on the timing of her first cigarette of the day. We don't have that information, so it is reasonable to start her on 2 mg strength. She should chew gum or use lozenge every 1-2 hours (max 24 pieces of gum/day or 20 lozenges/day). If continued at discharge, she should continue this dosing for 6 weeks before any adjustments are made. Appropriate dosing for the nicotine nasal spray is 1-2 sprays in each nostril/hour (max 10 sprays/hour, 80 sprays/day). The nicotine inhaler is not an appropriate therapy since it is no longer available in the US. Bupropion SR can be started at 150 mg PO daily. Typically, we would titrate up to 150 mg PO BID; however, her maximum dose is 150 mg/day due to her renal function. Varenicline is initiated at 0.5 mg PO once daily and eventually titrated up to 1 mg PO BID (no renal adjustment required). Maintenance dosing can be continued for at least 11 weeks. The patient should start with monotherapy, with additional therapy added as an outpatient if needed

Pharmacotherapy should be combined with behavioral interventions (e.g. cognitive behavioral therapy, motivational interviewing) to increase successful cessation.

Health Care Problem
Immunizations[39]

The patient previously received PPSV23 (in 2019) and needs either the PCV-21, PCV-20, or PCV-15 to complete her pneumococcal series.

Health Care Problem
Obesity[40]

The patient has a BMI of 31.6 kg/m², qualifying as obese. While she is eligible for pharmacotherapy (e.g., a GLP-1 receptor agonist), she has chosen to pursue lifestyle changes first.

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